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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,896

03/07/2005

Katsuya Hasegawa

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EXAMINER

AUSTIN, AARON

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,896	Applicant(s) HASEGAWA ET AL.	
	Examiner AARON S. AUSTIN	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,9,10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) 12-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Newly submitted claims 12-18 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Inventions found in claims 12-18 (classified in class 427) and that found in claims 1-5 and 9-10 (classified in class 428) are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process (e.g., (1) not applying the magnetic field, or (2) forming the thin film and interface layer prior to application to the underlayer).

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

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- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 12-18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102 & 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 9-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hasegawa et al. ("Preparation of $\text{SmBa}_2\text{Cu}_3\text{O}_y$ Films with Improved In-plane Alignment by Pulse Laser Deposition", J. Japan Inst. Metals, 20 April, 2002, Vol. 66, No. 4, pages 320-328).

Hasegawa et al. teach a $\text{REBa}_2\text{Cu}_3\text{O}_y$ (Sm 123) thin film formed on an underlayer of BaZrO_3 (abstract and page 1, column 1). A BaO atomic layer commonly contained between the thin film and the underlayer is shared at an interface of these two layers. In the region directly adjacent to the interface, the ratio of crystalline regions having grown with an orientation of less than 1.6 degrees on the basis of crystal orientation of the underlayer is 50% or more as evidenced by the X-ray diffraction data. The underlayer is single crystalline.

There appears to be a conflict in interpretation of the Japanese translation of the Hasegawa et al. reference with respect to the thickness of the Sm 123 film.

Hasegawa et al. do appear to teach an exemplary film thickness of 0.4 microns (see page 10, line 14 of the translation supplied by the USPTO Translation Branch). It would appear that the original Japanese document supports a value of 0.4 microns (page 3, line 14) rather than a value of 0.04 microns as recited in the translation supplied by applicant (page 6, line 14). In either case, as an alternative interpretation of the reference, it would also have been obvious to one having ordinary skill in the art at the time the invention was made to develop the film at the thickness claimed, since such a/ modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the

art. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Further, while Hasegawa et al. do teach a temperature higher than 91 K (page 10, line 16 and Fig. 3), they do not appear to teach the thin film as superconductive at a temperature higher than 91 K and having a critical current density of more than 4×10^5 A/cm², when a magnetic field of at least 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77 K or greater. However as like materials are used and formed in a like manner, they are expected to have the same physical properties.

Regarding claim 2, stacked-layer crystal structures are taught.

Regarding claims 3 and 4, perovskite type compounds are taught as the thin film and underlayer.

Regarding claim 5, the difference in lattice constant as claimed is taught.

Regarding claim 8, superconductivity is taught at a temperature of 93 K.

Regarding claim 9, as like materials are used in a like manner, the interface energy is expected to be the same as claimed.

Regarding claim 10, the language used is product by process. The above arguments establish a rationale tending to show the claimed product is the same as what is taught by the prior art. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a

different process.” In re Thorpe, 227 USPQ 964,966. Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113.

Response to Arguments

Applicant's arguments, see the Remarks, filed 4/8/08, with respect to the rejections under 35 USC 112 first and second paragraph have been fully considered and are persuasive in light of the present amendments. These rejections have been withdrawn.

Applicant's arguments filed 4/8/08 with respect to the rejections over prior art have been fully considered but they are not persuasive.

First, Applicant argues the authors of the Hasegawa et al. reference were unable to achieve the claimed critical current density as recited in claim 1. As such, the argument states that even though like materials are expected to act in a like manner, the materials of Hasegawa et al. did not obtain the claimed current density or give reason to believe such a current density could be obtained. However, Hasegawa et al. are silent on whether or not the claimed current density could be obtained with the

taught product. Therefore, as Hasegawa teach like materials, the claimed properties are expected to be present in those materials absence a showing otherwise.

Moreover, in response to the argument that Hasegawa et al. were unable to attain sufficient superconductive characteristics as evidence of unexpected results, Applicant has erroneously pointed to page 3, lines 12-16 for support of this contention. The discussion at this point in the reference relates to prior art methods, not the method and product taught by Hasegawa et al. In fact, the substance of the reference itself tends to argue that the teachings therein serve to alleviate this problem in the prior art. The argument is therefore unconvincing.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John J. Zimmerman/
Primary Examiner, Art Unit 1794

/Aaron Austin/